



**DON-USDA HAWAII RENEWABLE & BIOENERGY
INDUSTRY FORUM
April 2010**



- Integrated sugarcane & biomass based power and biofuel facility
- Control Large Percentage of Inputs:
 - Sugarcane feedstock for biofuels production, fuel for power plant
 - Biomass fuel for power generation and cellulosic biofuels
 - Drip irrigated cane lands, and established rain fed cane lands – water primary determinant in crop selection
- Future Renewable Energy Projects:
 - Integrate other renewable projects in cooperation with utility (solar, wind, hydro), waste to energy
 - Cellulosic biofuels (renewable diesel & jet fuel)
 - Next generation yield enhancement technology



PHASE 1 (Apr 2010 – Jul 2012)

- Invest in agriculture infrastructure and crop development (\$20 million)
- Expand cultivation to idle former sugar lands
- Develop biomass on non-sugarcane suitable lands
- Install new power plant infrastructure (\$80 million)



PHASE 2 (2012 and beyond)

- Construct biofuel production facility (\$40 million)
- Integrate solar electricity production (\$TBD)
- Install hydro power capability, integrated with irrigation management plan (\$TBD)
- Install cellulosic biofuel technology & next generation energy (electricity) technology (\$TBD)
- Recover CO₂ for possible algae to biofuels production, and other potential uses (\$TBD)



- Produce 150 million kWh green electricity for export
 - Reduces fossil fuel use
- Produce ethanol, other biofuels, jet, naphtha, diesel
- Green cane – cease burning sugar cane
 - Reduced air pollution
 - Maximizes energy yield and carbon footprint
- All combine harvested
 - Evaluating trash handling, e.g. separate or blend
- Fertilizer from ethanol vinasse
 - Reduces import requirements
 - Returns natural potassium for fields
- Single-year cane, plant every five years, not two.
 - Maintain current pineapple spacing, test other spacing techniques

Typical (Pineapple Spacing)



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Typical Cane Row Spacing

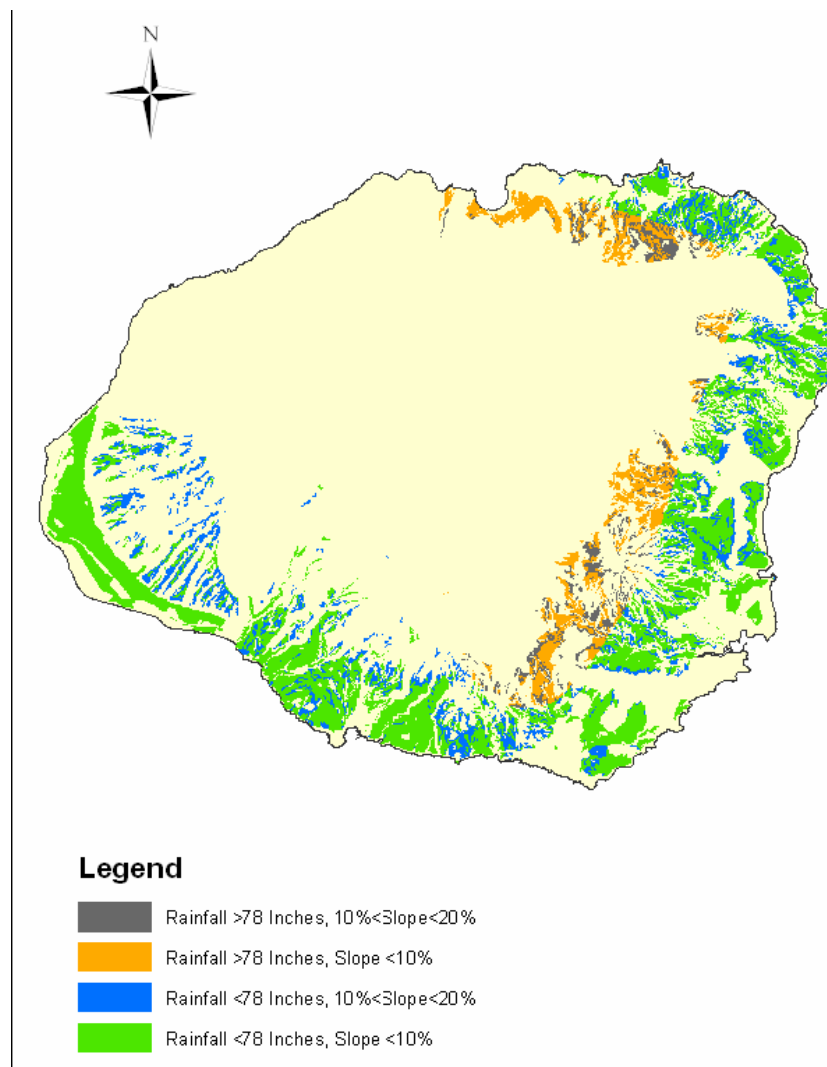


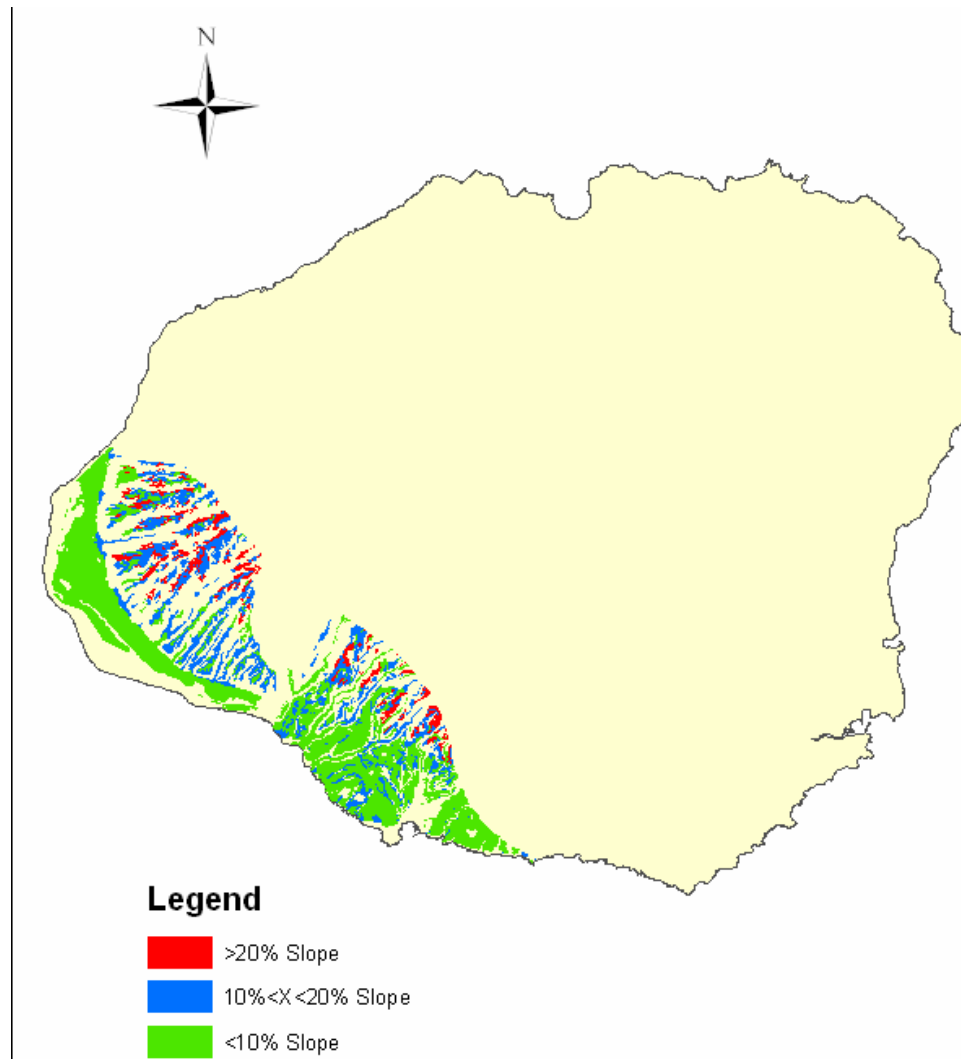
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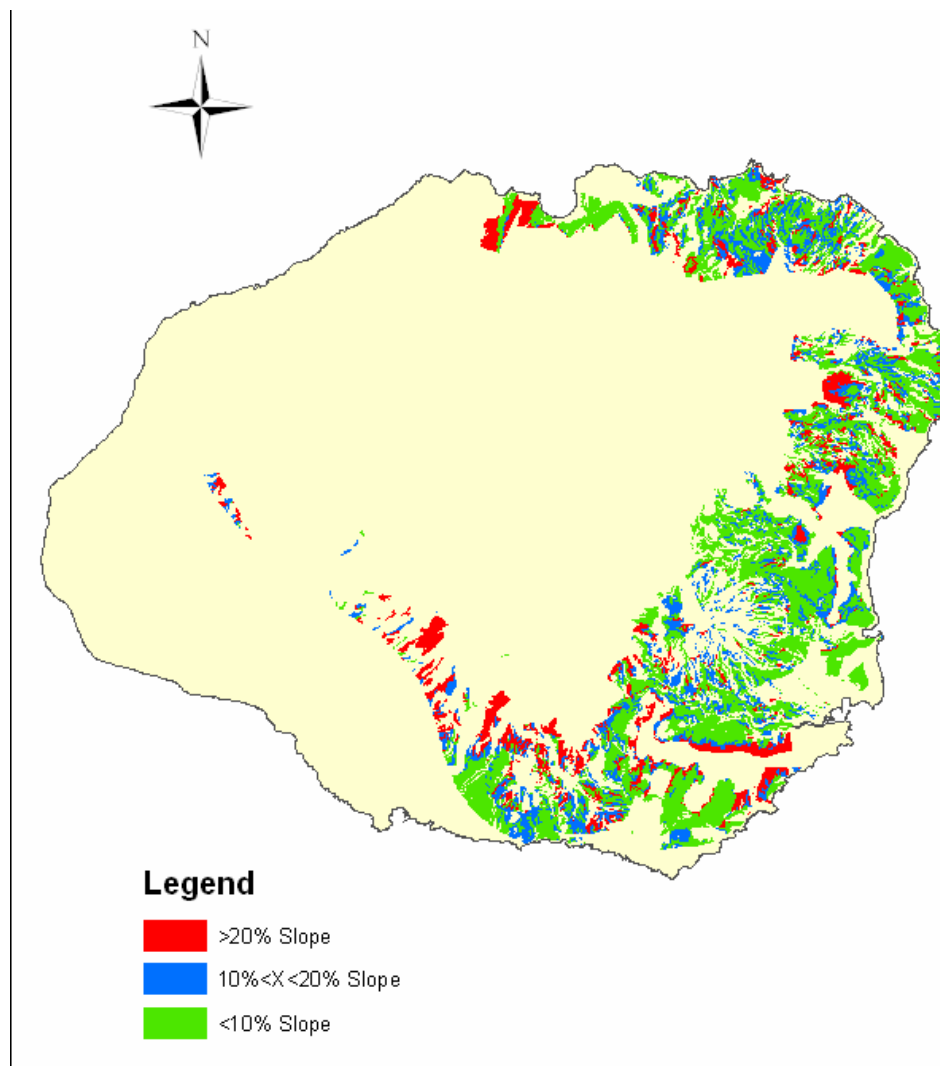


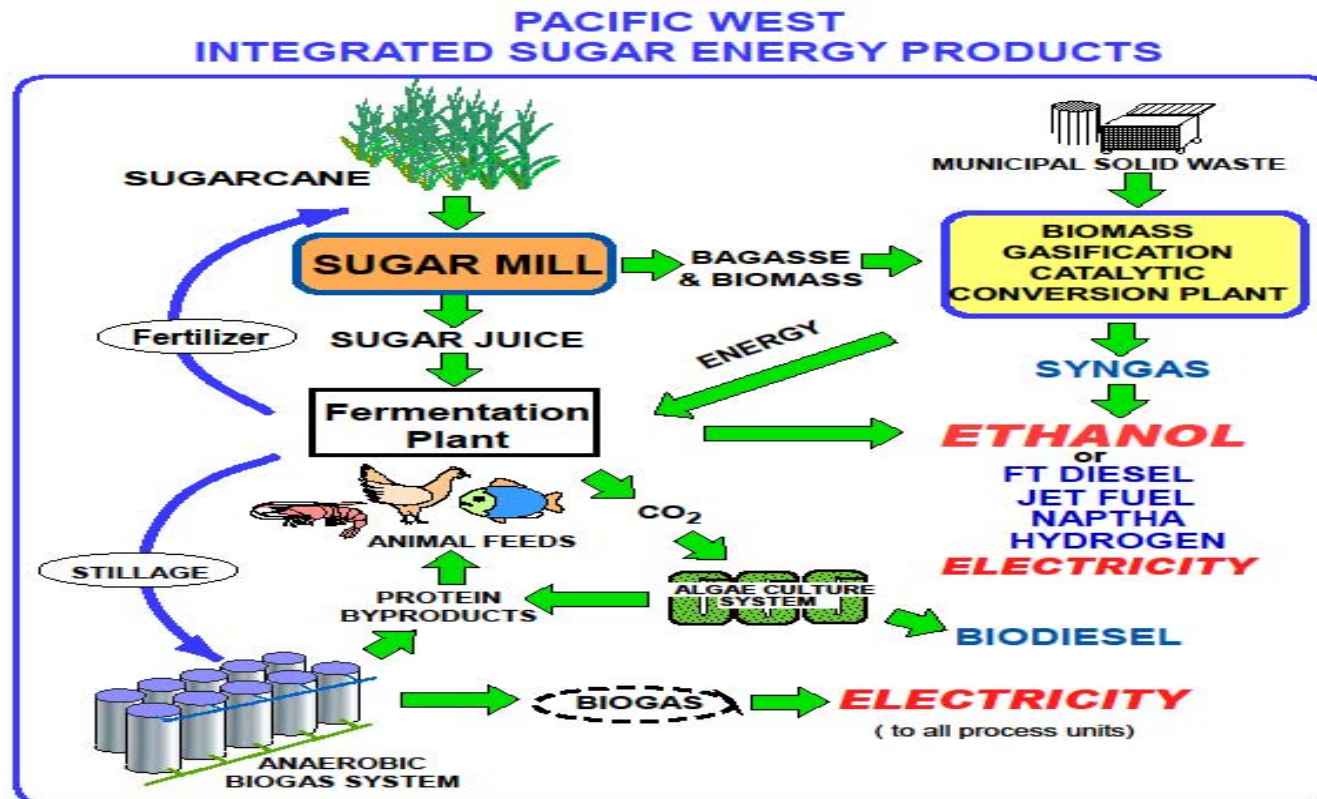


- Lower electricity rates & green energy for all Kauai's citizens
- Job creation on Kauai, and in particular west side
- Over \$50 million annually of direct expenditures into Kauai's economy that would otherwise go off-island
- Reduces Hawaii's petroleum import needs by approximately 500,000 barrels per annum, valued at over \$40 million per annum
- Preserves west Kauai's agricultural economy and way of life
- Reduced pollution, soil erosion & flooding





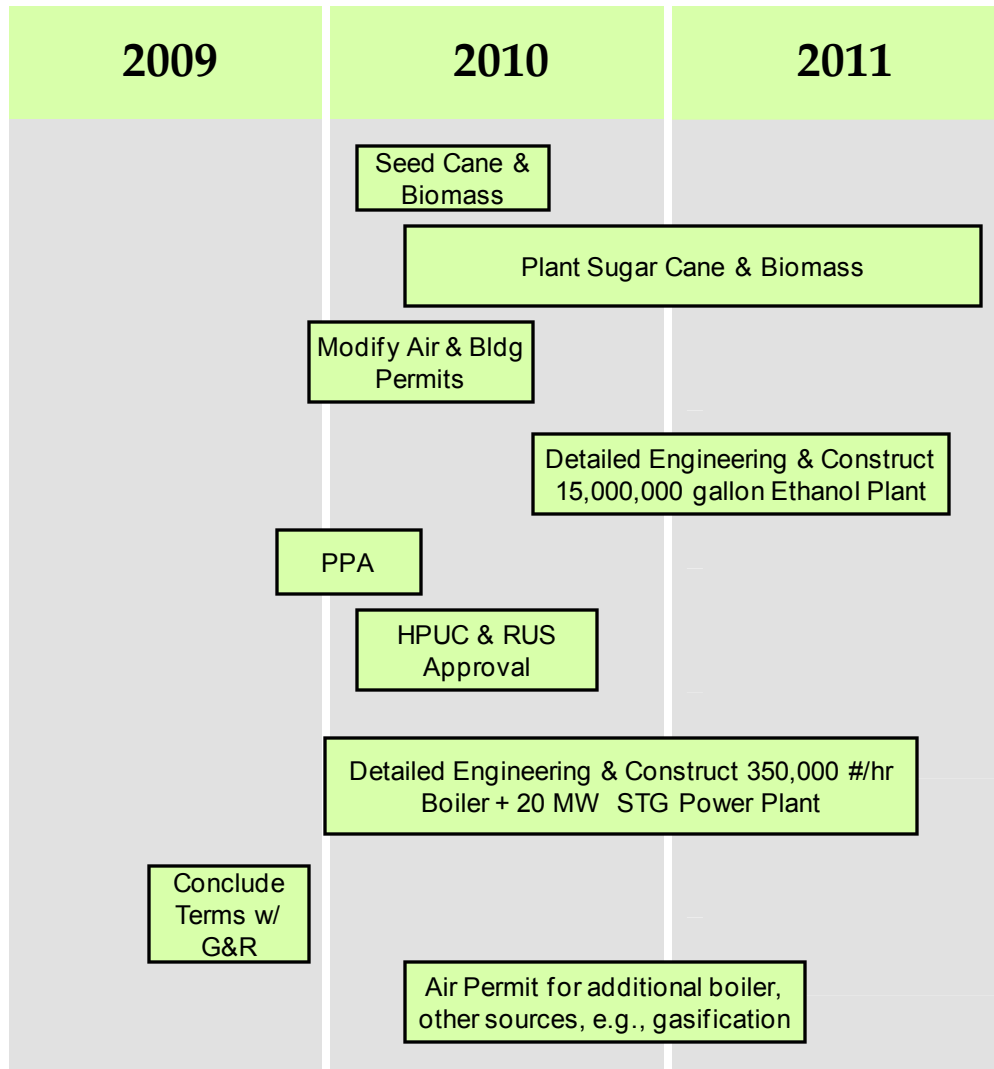




Project Timeline



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Target Milestone Dates	
10/15/2009	PPA Commercial terms approval (KIUC)
5/1/2010	Conclude commercial terms for process site location
6/01/2010	Commence nursery and , test plots biomass
515/2010	PPA approval (KIUC)
10/30/2010	PPA approval (HPUC and RUS), financial close
6/1/2011	Commence large scale cultivation of biomass crops
7/01/2011	Commence On-Site Construction
07/01/2012	New boiler and 20 MW STG commercial operation